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Cover Page

These bomb-like tanks, containing shelled and unshelled peanuts along with insects and varying dosages of carbon dioxide and nitrogen, are used in one of several tests employing non-chemical techniques to fight insects that destroy or damage stored food, grain and other products from our farms.

Editor, JAMES A. HORTON



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School Lunch Day in Hawaii

WHEN HAWAII celebrated school lunch day April 9, it was an occasion worth noting: Hawaii has one of the Nation's most successful school lunch programs. About 80 percent of its public school children participate—in contrast to a national average of about 35 percent in the National School Lunch Program.

Hawaii's Governor John A. Burns proclaimed the day to point out the importance of school lunches for Hawaii's children and its farm foods, including canned pineapple.

In both Hawaii and the Nation's Capital, the day was marked by the serving of a typical Hawaiian lunch.

In Hawaii, some 120,000 students in the State's 193 public school cafeterias ate either a pineapple pot roast or pineapple tuna potato puffs with lo-

cally grown carrots, a tossed salad featuring watercress, and, for dessert, pineapple layer cookie bars. At Honolulu's McKinley High School cafeteria, a majority of the State's Senators and Representatives gathered along with Department of Education officials and community leaders to eat a lunch just like the one served to students earlier.

In Washington, D.C., Hawaii's U.S. Senators Hiram Fong and Dan Inouye had the same school lunch menu served to their colleagues in the Senate dining room. Also in attendance were Hawaii's U.S. Representatives Spark Matsunaga and Patsy Mink, and Assistant Secretary George L. Mehren of the U.S. Department of Agriculture, whose Consumer and Marketing Service administers the National School Lunch Program.



Hawaii's Governor John A. Burns signs proclamation making April 9, 1965 Hawaii School Lunch Day as two students and Miss Florence Wagner, director of school lunch services for the Hawaii Department of Education, look on approvingly. At left, the McKinley High School cafeteria, one of Hawaii's 193 school lunchrooms.



At left, some of Hawaii's leading citizens observe school lunch day at McKinley High School in Honolulu. Above, from left, in U.S. Senate dining room, are Assistant Secretary George L. Mehren of USDA, and Hawaii's U.S. Senators and Representatives: Rep. Spark Matsunaga, Sen. Hiram Fong, Rep. Patsy Mink, Sen. Dan Inouye.



The National Commission on Food Marketing

By Harold F. Breimyer

LAST YEAR the Congress, at the President's behest, took a step that could have much to do with the kind of farm markets — and, indeed, the kind of agriculture — we are to have in this Nation in years to come. It was the establishment of the National Commission on Food Marketing.

The Commission, a 15-member body, was created by Act of the 88th Congress. It was charged with looking into the entire marketing system for farm products. It was told to look fast, and report back quickly. Its original reporting date, however, has since been extended to June 30, 1966.

The Commission spent last fall in organizing itself and assembling its staff. Its work got underway early this year. On April 1 at Cheyenne, it began a series of public hearings.

A Weighty Assignment

Sometimes, the legislative process turns to commission studies as a way to escape a legislative impasse. This was not the case with the Food Commission. For one thing, it followed no impasse, but virtually unanimous support. Its legislative history makes clear that the idea for a study arose out of serious concern for developments taking place in farm markets.

The Commission comprises five members of the Senate, five of the House, and five public members appointed by the President.

The literal assignment of the Commission, as stated in its law, is simple enough. It is to "study and appraise the marketing structure of the food industry." The language calls for studying both past changes in marketing and those in prospect for the future. It asks the Commission to describe the kind of food industry that would meet the ideals of a marketing system, including equity of relationship among all parts of the system.

The call for looking at equity is especially noteworthy. Many past studies of marketing have been directed primarily to operating efficiency. It was assumed in those studies that the system is so competitive that the benefits of improved efficiency would be passed to the producer and consumer. The Food Commission, by contrast, does not take internal competitiveness

for granted. Instead, it is charged with inquiring into all aspects of marketing — its efficiency, its bargaining relationships, its competitiveness.

The Commission is also required to comment on the adequacy and effectiveness of Federal services to marketing, and on the effect of food imports.

The objective of the Commission's study is made clearer by statements of its heads. Dr. George Brandow, Executive Director of the Commission, recently expressed it in these words. "All kinds of changes have been taking place," he noted, "in the way in which the food industry is organized and how it operates." Then he asked:

"See if you can give us some perspective on the extent to which firms are becoming larger, fewer, and more vertically integrated. Try to find out why these changes are taking place . . . how they are affecting the efficiency of the food industry, the bargaining power of different groups within it, and the maintenance of fair and effective competition. Advise us on the ways in which the regulatory activities of Government are outmoded, ineffective, or otherwise in need of revision. In short, how can we maintain the efficient, competitive kind of industry that is in the best tradition of American private enterprise?"

Method of Operation

The Commission has set up five project areas. They are livestock and poultry, dairy products, bakery and cereal products, fruits and vegetables, and food retailing. Its professional staff, which as of June 1 numbered about 25, is primarily drawing on information already available from government agencies and from private sources. The U.S. Department of Agriculture, the Bureau of the Census, and the Federal Trade Commission, for example, are compiling both old and new research data for the Commission's use. The Commission may also use the services of various commercial consulting firms and specialists to round out its picture of marketing as it is done today.

The Commission has held a series of public hearings. Those on livestock were at Cheyenne, Ft. Worth and Omaha. A hearing at Washington, D.C.

was devoted to costs and margins in food retailing. Fruit and vegetable marketing was the subject of sessions at McAllen, Texas, and San Francisco. A poultry and egg hearing was held at Atlanta in May and a second is scheduled for Minneapolis in August.

The Broader View

What will the Commission come up with? No one can predict. Its mandate is so general that it could be as narrow or as comprehensive as it may choose. Doubtless the Commission will comment on particular forms of organization of the marketing system and particular practices that are employed. It might pass judgment on changes in livestock and dairy marketing. It is almost certain to remark on the "proliferation of services" in food retailing that was mentioned frequently in the retail hearings. It is equally likely to touch on procurement practices of food retailers.

The Commission is virtually committed to offer a critique of present performance by government. It may commend or censure government action under present laws, and it quite possibly will offer a judgment on the adequacy of those laws.

But the greater impact of the Commission's findings will lie not in their particulars but in their broader and longer-term message. What kind of a marketing system for farm products, and what kind of an agriculture, will the Commission's report to the President and Congress — and to the Nation — point toward?

For many years the farm markets of this country have been modeled on the principle of free and open trading among farmers as sellers and market firms as buyers. There were to be no power-wielding giants, and no collusion. It was essentially a decentralized system. Federal and State governments protected against noncompetitive practice and provided auxiliary services such as market news and market grades, standards, and inspection. Otherwise, the competitive market system was intended to be self-regulating. This is, without overstatement, a part of the American dream.

In the last decade or two, parts of this competitive system of farm mar-

kets have eroded away. Marketing firms have grown larger. Concentration of business in the hands of large firms has increased greatly in food retailing, as chains now dominate. Concentration has increased in some, though not all, food processing industries.

A high proportion of all farm products is now sold direct to processor or even to retailer, rather than through central markets. Although the change is not necessarily harmful, it may interfere with competitiveness and it definitely complicates the job of providing protective and auxiliary services to trading.

The greater change, however, is toward arrangements in production and marketing that by-pass market trading. A Florida fruit processor puts its own crew into a grower's orchard. A California fruit canner owns and operates its own orchards. A meat-packer feeds its own cattle. A feed mill enters into contracts with dozens or hundreds of small broiler growers.

Some of these new ways of marketing may offer some advantages. Often, market firms find they can control the quality of products better through contract production than through purchase. The marketing problem arises insofar as producers find it difficult to bargain effectively with alternate buyers (or contractors). Free access to a num-

ber of buyers is the heart of a system of open competitive markets. Many integrated relationships fail to provide an equally good opportunity for producers to negotiate freely and widely.

Structure, not Misconduct

These trends were in the minds of persons and groups who sponsored the legislation establishing the Food Commission. Those who asked for the law generally did not charge marketing firms with wrong-doing. Dr. Harry Trelogan, Administrator of the Statistical Reporting Service, USDA, observed that the "atmosphere surrounding the creation of the Commission . . . has been relatively free of charges and countercharges." Sponsors were more concerned instead with the *structure* of the system itself. They wanted to know more about the relationships among various parties in the system. They asked where the system is headed, and how its evolutionary change could be guided wisely.

Testimony at hearings on the Food Commission bill was liberally sprinkled with remarks along this line. Secretary Freeman said that an issue is not merely the performance of the food industry, but "the shape of the American economy and the kind of Nation in which our children will live." The spokesman for the National Grange

asked if there might be enough concentration of economic power in farm markets to restrict competition unwisely, to the detriment not only of farmers but of the general welfare. The executive vice president of the National Council of Farmer Cooperatives asked for a "penetrating study" of the market organization and structure not only to "develop sound public policy" but to educate "farmers and the public about the world they live in."

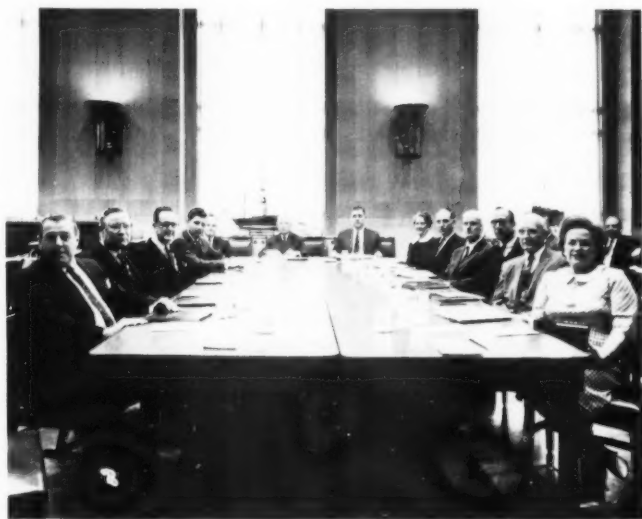
Senator Everett Dirksen, in a statement published in the Congressional Record, noted that "the strength of our institutions, both political and economic, has traditionally required a wide distribution of power." He added that we have sought an informal but real power balance "in our economic arrangements." And further, "This balancing of interests in the field of agriculture now appears to be gravely disturbed." The Senator especially sees a danger that producers as well as processors of food would "be reduced to the status of anonymous suppliers at the prices and in the terms of the few groups dominating the retail market for food."

The Commission's study ranges far and its findings will probably also touch many subjects. Not all will deal directly with the structural aspects of marketing. But by and large their greater significance will be structural in nature. For, repeating, the Commission is looking not for individual misconduct in markets, but for evidences of undesirable ways business is done, and imbalances that weaken the position of some groups vis-a-vis others.

Moreover, it is possible that the Commission's report will have meaning not only to existing structure of food markets. It could relate, however indirectly, to several marketing arrangements into which both market firms and farmers are now probing. These include various contractual and vertical arrangements. They could include a note on the place of marketing orders and agreements as a marketing aid. Cooperation will likely come in for attention — both bargaining cooperatives, and purchasing and marketing cooperatives.

Whatever course the Commission chooses to take, its findings will be of signal significance not only to farmers but also to all who buy from them, all who sell to them, and all who depend on them for food and fiber. That includes just about everyone.

(The author is Staff Economist, Office of the Administrator, C&MS.)



The Commission members are assembled in session; from left: Senators Magnuson, Hruska, Hart, McGee, (stenotypist); Chairman Gibson, Dr. Brandow (staff executive director), Representatives Sullivan, Purcell; Fred J. Marshall, Charles T. Stewart representing William M. Batten, Albert K. Mitchell, and Rep. May.

An Air of Doom for Insects



In studying the effects of controlled atmospheres on stored-product insects, USDA researchers release various mixtures of nitrogen, oxygen, and carbon dioxide from the pressurized cylinder in the background. The mixtures flow through gas-washing bottles and then into one-gallon glass jars containing caged insects.



Here's a close-up of the one-gallon jar containing caged insects. Controlled atmospheric gases enter via long tube at left and existing atmosphere is forced out via the short tube.

THE AIR we breathe may hold the key to one of the most effective ways to fight insects that destroy or damage food, grain, and other products held in storage. Everyone knows how uncomfortable air is when stale; marketing researchers in the U.S. Department of Agriculture have found that by adding even more carbon dioxide (CO₂) or nitrogen to stale air, or to fresh air for that matter, an atmosphere is created in which insects cannot live.

This is one of several nonchemical approaches to insect control being tested with storage insects by USDA's Agricultural Research Service. Many products, including all our grain, seeds, and peanuts, could be protected from insects by CO₂ or nitrogen enriched storage atmospheres.

The Romans and ancient Egyptians achieved the same effect when they put their crops in airtight storage facilities; any insects present soon used up all the available oxygen in the air and perished. The same results are produced in airtight storage facilities for livestock feed now used in Argentina, England, and France.

Unlike the methods used in other countries, in which insect control is an accidental result, the ARS storage

tests are specifically designed to control insects with manmade atmospheres under controllable conditions. Another difference is that some oxygen will remain in the storage space in the ARS system, as a certain amount of this gas appears to be necessary to maintain the high quality conditions we expect in our food.

In tests by ARS entomologists at the Stored-Product Insects Research and Development Laboratory, Savannah, Ga., red flour beetles, both adults and the harder-to-kill larvae, died in only 7 days in an atmosphere with a CO₂ level of 68 percent. The CO₂ replaced two-thirds of the oxygen and nitrogen normally found in the air.

In another test, results were almost as good in a 50 percent CO₂ and 13 percent oxygen atmosphere. All of the adult beetles and 80 percent of the larvae died within 7 days. None of the larvae survived more than 14 days.

Indian-meal moths died in even smaller concentrations of CO₂. An atmosphere of 37 percent CO₂ and 15 percent oxygen killed the moth larvae within 7 days. Adult moths, which are more susceptible to control measures than the young, probably would be killed by even smaller amounts of CO₂.

One of the researchers' main achievements is their discovery that CO₂ atmospheres produce better results than those enriched with nitrogen. Although nitrogen atmospheres kill insects, nearly all the oxygen in the air must be replaced, or "purged," as the scientists say, with nitrogen before it matches the results obtained with CO₂. This is nearly impossible in any but an airtight container — and could not be expected to work in many farm or commercial storage buildings or bins. Moreover, the larger amount of nitrogen needed may make this approach more expensive than CO₂ atmospheres.

CO₂ has several advantages over conventional insect control methods. For one thing, there is no pesticide residue on food, and no danger to the health of those using CO₂. Workers, of course, would not enter storage rooms containing CO₂ at levels used in the ARS tests until there was sufficient oxygen to breathe. Or, they could breathe with skindiving equipment, which is used sometimes by workers in commercial controlled-atmosphere storage rooms containing apples. Air in commercial storage rooms or grain bins could be easily restored.

CO₂ could be used in facilities that are not even airtight. Leakage could be overcome by continually releasing small quantities of CO₂ to maintain an effective concentration.

Unlike some volatile insecticides, CO₂ does not increase the danger of fire in storage rooms. In fact, such oxygen-deficient atmospheres could help to snuff out a fire.

The effect of high CO₂ levels wasn't tested on rats or other rodents by the entomologists, but CO₂ could be expected to discourage infestation by these pests. CO₂ in smaller amounts than used in the ARS tests gave excellent control of rats and mice in tests by the Rhode Island Agricultural Experiment Station. The Rhode Island tests were made in cold storage facilities for fruits and vegetables.

The ARS tests were made on a laboratory scale, in glass jars and tanks. Results are promising enough to justify future tests on a large scale under farm and commercial storage conditions.

Scientists made conditions as comfortable as they could for the insects — 80° F. and 60 percent relative humidity — so they could measure the response under conditions most conducive to infestation. At the same humidity, but at a lower temperature, 60° F., it took a week longer to kill flour beetle larvae in a CO₂ atmosphere.

These small-scale experiments have

been designed to run almost by themselves. Electronic equipment constantly measures the temperature and humidity. Temperatures are maintained on an even level by a continuously circulating water bath heated electrically by a cable underneath the jars. CO₂ is also released at metered levels.

Part of the same automatic controls that free the researchers for more important work could also be used on the commercial level to free storage house operators from constant monitoring of CO₂ levels and other tedious details.

Scientists are also starting some tests on a scale closer to real-life conditions: stainless steel bins, or towers that look somewhat like small grain elevators are being used. The 6-foot tall containers hold shelled and farmers stock (unshelled) peanuts and wire cages of insects. CO₂ and nitrogen are released in the containers to determine their effectiveness in purging the air and to determine their effect on the insects.

Under commercial conditions, this same procedure could be followed by elevator operators with recirculation systems ordinarily used with conventional fumigation.

The scientists hope to find answers to a number of additional practical questions in future investigations. Answers are needed for such questions as: What effect do the CO₂ and nitrogen have on seed germination? Will the quality of grain and products made from it be affected? Can we expect the same beneficial effects obtained by storage of fruits in atmospheres that lengthen their market life many months?

New, cheaper storage methods envisioned for the future, using rigid or flexible plastic instead of metal or wooden structures, present another challenge. The possibilities of using CO₂ atmospheres in such containers has yet to be investigated. As details of all the tests are obtained, information will be published.



The jars above are airtight and are being used by USDA researchers in related experiments, while tanks on the cover are used in tests a bit closer to real-life conditions and contain some oxygen, which appears necessary to maintain the high quality we expect in our food. The procedures used in tests with tanks or bins could be used under commercial conditions by elevator operators.

Midwest Disaster

In April, the American Midwest was drenched by some of the worst floods in its history when the spring-swollen Mississippi River overflowed. Then severe tornadoes battered the area. Thousands were left homeless and hungry. Fortunately, the U.S. Department of Agriculture's Consumer and Marketing Service was able to assist in emergency feeding operations. In one month, more than 2½ million pounds of USDA-donated food were made available to an estimated 125,000 people. When the flood waters subsided and the twisters blew out, families returned home, taking donated foods to sustain themselves.

Through close Federal-State-local cooperation, everything worked.



ST-223-4



ST-212-12



ST-220-6



ST-216-7



ST-224-9

From Minnesota to Iowa, from Nebraska to Ohio, feeding operations went on around the clock. Tons of food helped victims of the twin calamities. Some of the families displaced by floods were out of their homes for several weeks. They were sustained with donated commodities until they got back on their feet.

The demand for USDA food was heavy, but the challenge was met and overcome.

To the right: A volunteer cook in Mishawaka, Ind. prepares supper from canned, chopped beef; and displaced families in Russiaville, Ind. eat Palm Sunday dinner.



ST-222-4



ST-221-6

Disaster Feeding



ST-217-3

Federal and State officials map plans for getting USDA-donated foods to victims.



ST-210-2

Charles A. Howell, Indiana's distribution director, followed tornado, fed victims.



ST-222-12

Advance preparedness was crucial in feeding the midwestern storm victims. School boards were alerted, commodity warehouse personnel and State distribution agents told to stand by, and local volunteer groups notified. When the floods hit and winds began blowing, all emergency feeding programs were ready to go. Decisive action, teamwork, and dawn-to-midnight work schedules were common, getting USDA foods where they were needed when they were needed.

Some of the groups and agencies active in the Federal-State-local feeding effort, From left: Red Cross volunteers near Quincy, Ill.; two sisters from St. Theresa College, Winona, Minn.; Salvation Army worker in LaCrosse, Wis.; Mennonite Church workers in Dunlap, Ind.



ST-217-6

Some Indiana National Guardsmen in Kokomo take a break after an exhaustive day digging out a tornado-blasted shopping center. Volunteer workers were fed USDA food.

Better Retailing of Bakery Products

By George A. Kisacky

SUPERMARKET managers who want to improve efficiency and profits in their bakery departments — and at the same time satisfy customers who spend nearly \$3 billion a year at supermarket bakeries — may find that U.S. Department of Agriculture marketing researchers have the answers they are looking for.

A combination of self-service and clerk service best meets the twin demands of customer satisfaction and management efficiency, according to a study by USDA's Agricultural Research Service. This system combines the advantages of the self-service system, offering fast service and lowest operating costs, with those of clerk service — convenience and maximum sales. ARS marketing researchers studied representative bakery departments in Minnesota and Washington, D. C.

Labor costs totaled only 1/2-cent per sale in self-service systems, but totaled 2 1/2 cents per sale when clerks waited on customers over the counter. This seeming cost advantage isn't as large as it appears, though. Although the over-the-counter system costs more, it often attracts additional customers, and may also increase sales in other departments in the store.

Over-the-counter systems also devote more space than self-service systems to enticing displays of cakes, pies, and other baked goods that are more profitable than bread. Customers can obtain individual service, too, such as half a cake, a mixture of different kinds of cookies, doughnuts, or leave an advance order for a special cake.

Stores could perform a worthwhile educational service to customers by advertising the fact that their clerks often package top-quality items in display shelves and stack them on the self-service shelves and counters. Unless customers realize this, they may wait in line for the same product in the belief that those behind the counter

are better than those on the shelf.

In stores that have self-service bakery departments only, customers may be able to obtain products for special occasions by ordering from a store clerk, who relays the order to the bakery.

The idea of limitations in space may be new to customers who view acres of shelves in the modern, large supermarket. However, competition for this space is strong, as each manufacturer and baker wants to have his product displayed to maximum advantage. Results of the ARS study indicate that the self-service system makes best use of the limited display space available to bakery items.

However, stores having counters sales had total bakery sales that were 30 to 50 percent higher than those with self-service counter only, even though sales per square foot were lower.

Sales of the more profitable bakery items, such as cakes, cookies, and pies, were twice as high in stores where they were sold over the counter. Only 7 to 13 percent of the bakery sales were made up of these specialty items in self-service systems, but they accounted for 16 to 27 percent of sales in counter-sales systems.

ARS marketing specialists found that in many stores self-service items are not price-marked. This is an inconvenience to customers, and increases the risk that either the customer or the store may be short-changed if the check-out clerk does not remember the correct price. If the clerk takes the time to look up the price, then the no-wait advantage of self-service is lost.

Adjustable stamps are still widely used in marking prices on items. ARS marketing specialists found that a set of inexpensive self-inking stamps cut stamping time in half. Stamping should be completed before items are put on display to avoid congestion, which was found in some cases when deliverymen stamped the prices on goods after

stacking them on the shelves.

The tendency of salesmen to fill as much space as possible with their products, and of bakery departments to overfill their display space, sometimes led to greater quantities of goods than could be sold. The bakery, or store, if it baked its own products, had to stand the loss from discounting products sold after they passed the peak of freshness.

Overordering by store personnel is the principal reason for excessive quantities of stale goods, researchers said. The stores, by marking down the price, were able to recover from half to two-thirds of what the product would have brought if sold when fresh. Nevertheless, losses could be trimmed further if accurate sales estimates were used. One store lost nearly \$100 a week by discounting stale products.

Fast-moving demand products, such as bread and rolls, accounted for about 70 to 80 percent of total stale products. Overstocking is responsible because stores are more likely to permit empty space on shelves for cakes and pies than for bread.

The number of stale products can be reduced by better ordering and handling. Marketing specialists found clerks filling out a wide variety of order forms that did not always fulfill the need. They recommended a form that would help estimate needs that vary with special advertising of products, holidays, and other special occasions. Such a form would also give a record of products received and returned to the bakery, and other details affecting the quantities needed.

Managers should make sure that employees know what is expected of them, too, in order to make productive use of all workers' time. A written job description would help if it outlined specific duties and approximate time for their completion.

The ARS study included only supermarket bakery departments, but many of the findings are also useful for smaller stores and independent retail bakeries. Details are given in ARS 52:4, "Service and Self-Service Bakery Departments in Retail Food Stores." Free copies are available from the Wholesaling and Retailing Research Branch, Transportation and Facilities Research Division, ARS, USDA, Federal Center Building, Hyattsville, Md. 20781.

(The author is a member of the Transportation and Facilities Research Division, ARS.)



This is the portable baling machine recommended. Baled wool is easier to handle and stores better than bagged wool.



Clamp trucks can carry two bales at a time and do the work of five hand trucks. Bales are better stacked end-on-end.

Handling Wool at Lower Costs

By T. F. Webb and C. D. Bolt

THE WOOL industry can strengthen its competitive position by lowering operating costs with methods studied in warehouses by marketing researchers in the U.S. Department of Agriculture. Many of the nearly 200 warehouses that handle wool could use the USDA recommendations.

Streamlined handling methods recommended by USDA's Agricultural Research Service can trim 10 percent off the costs of handling wool in a small warehouse, and as much as 30 percent in larger operations. For example, about \$4,700 a year could be saved at a large warehouse — one with a wool turnover of 2 million pounds annually.

Large warehouses would save the most because they could make maximum use of mechanized equipment. Savings are worthwhile even with less than full use of equipment in many smaller warehouses.

Consumers and wool producers are the ultimate beneficiaries of research to hold down marketing costs, which affect both the price dealers can offer the producer and the final retail price.

In the recommended system, one clamp truck would replace five hand trucks used in more conventional systems. A single portable scale adds to greater efficiency, replacing three stationary scales. Two conveyors and a portable wool baler round out the modernization in handling equipment. Wool would not be bagged, because bagged wool requires more storage space and results in less efficient han-

dling than does baled wool.

This equipment could pay for itself in three years. A clamp truck, portable scale, two belt conveyors, and a baling machine cost about \$11,000 at the time the ARS study was made. A lifetime of 15 years could be expected for all but the clamp truck, which would have an expected lifetime of 8 years.

A breakdown of costs with modernized handling equipment shows that some mechanical operations are actually more expensive than manual methods, but savings in other handling chores more than offset this added cost. Grading and loading out wool, for example, is so much less costly with mechanical equipment that it offsets the higher cost of using this equipment for receiving and storing 500,000 pounds of wool. The advantage of mechanization is greatest when equipment is used at or near capacity.

The greater the volume of wool handled, the more advantageous is a mechanized system. A warehouse handling 500,000 pounds of wool annually could save about \$1 per thousand pounds, topping off at about \$2.35 per thousand pounds when handling 2 million pounds with mechanized equipment.

A bale of wool may vary in weight from less than 400 pounds to as much as 1,000 pounds in some cases. The researchers recommend the smaller, more compact 400-pound bale for mechanized systems because it can be made with a small baler which can be moved to different bins and other loca-

tions in the warehouse. The smaller bale is also more easily handled.

ARS engineers developed layouts designed for mechanized warehouses. Twenty-foot wide aisles for easy movement of clamp trucks, and ceilings high enough — about 12 feet — for stacking bales two high, end-on-end, are included in the suggested layouts. Layouts are centered about the grading table for most efficient traffic movement. Storage space typical of that in many observed warehouses is allotted for ungraded wool, and for different grades of loose or baled wool.

The same basic layout can be applied to warehouses of a wide range of sizes. Additions for expanded business would be easy to make in warehouse layouts designed by the ARS engineers.

Changes in layouts for a 50 percent expansion of the warehouse are included in the suggested layouts. Half the total storage space is given over to ungraded wool. About 10 percent of the storage space is allotted to bales, and the remaining 40 percent to loose wool in bins. Warehouse layouts designed by the engineers range from a capacity of 500,000 pounds of wool in a building measuring 141 by 103 feet, to a capacity of 3 million bales in a building measuring 262 by 242 feet.

Details will be given in a forthcoming report.

(The authors are members of the Transportation and Facilities Research Division, ARS.)

CONSUMER AND MARKETING BRIEFS

NEW PEA STANDARDS

New U. S. Standards for grades of Southern peas for processing became effective June 1. The number of grades have been reduced to two, instead of the three originally proposed.

TO MARKET BY AIR

A family in West Germany sits down to a meal of waffles, topped with whipped cream and strawberries, freshly picked from California fields.

Sounds unbelievable?

Not at all — with the growing use of air freight for moving our highly perishable farm products.

Flying these products across oceans to distant markets — sometimes nearly 10,000 miles apart — has opened new export markets. By the end of April, more than one-half million pounds of California strawberries had been flown to European markets, such as Frankfurt, London, Paris, Zurich, Amsterdam, Stockholm, Goteborg, and Helsinki. About eighty percent of the volume had moved to West Germany — for use mostly in pies.

Federal-State fruit and vegetable market news offices in San Francisco and Los Angeles have been reporting daily air shipments of strawberries from California to U. S. and foreign points since 1963. In that year, 316 carlots — 5 percent of the interstate movement — went by air. Last year the volume jumped to 746 cars — 13 percent of the total shipped from the State.

Strawberries aren't the only produce perishable moving by air these days. Others include asparagus, mushrooms, lettuce, and oriental vegetables like edible pod peas, lily roots, and water chestnuts.

NEEDY LUNCHES

A total of 170,628 needy children in 1,271 schools across the country received school lunches free or at reduced rates during the 1964-1965 school year. The schools received additional assistance from regular funds of the National School Lunch Program.

DONATED FOODS IN BOSTON

Boston got off to a good start in its first distribution of USDA-donated foods in its Roxbury district, serving 1,274 persons in 258 families the first

two days. The city expects to serve some 5,000 Roxbury families each month. Boston plans provided for opening five other distribution centers by the end of June.

TWO NEW EXHIBITS AVAILABLE

Two new Consumer and Marketing Service exhibits are now available for free loan. One exhibit (C&MS-55) features C&MS programs aimed at sharing America's food abundance. In pictures and words the importance of the Food Stamp Program, Commodity Distribution Program, and School Lunch Program are shown.

The other exhibit (C&MS-56) features grading and inspection. The various shields and stamps used to identify inspected and graded products are the "stars" of this exhibit.

USDA exhibits are loaned free of charge. However, borrowers are expected to pay shipping costs from Washington, D.C. and return.

If you would like to borrow these exhibits or want more information write:

U. S. Department of Agriculture
Office of Information
Exhibits Service
Washington, D. C. 20250

SCHOOL LUNCHES IN BRAZIL

From Brazil comes the report that by the start of the second school semester next August, every single state and territory of that country will offer a school lunch to a total of three quarters of a million students in schools with facilities for preparing and serving a hot meal.

The BRAZIL HERALD (only English Language paper in Brazil) reports that: "The Brazilian School Lunch Program . . . an organ of the Federal Ministry of Education, was founded by Decree Law of 1955, but had limped along with little official support until the 1960's.

"When the Alliance for Progress began to take form, and Food for Peace came to Brazil in 1961, one of its first agreements was with (the school lunch program) to provide 10,000 tons of non-fat dry milk annually to bolster the school "snack" (merenda) being offered. This proved so successful that in December 1963 an agreement was

signed to furnish additional U.S. agricultural commodities through (the lunch program to expand the snack to a nutritious meal) in schools throughout the nation.

"Several states ran pilot programs before the signing of the agreement. . . and all demonstrated remarkable effects, in even the first few months, of a nourishing lunch — not only on the children's growth, weight increase and general health, but also on their studies.

"Students learned to read faster, memorized more quickly and retained what they learned longer, grades were higher and failures far fewer when the children had fuller stomachs."

CHANGING MARKETS

COLORADO ADOPTS USDA EGG GRADE

The State of Colorado last June adopted the USDA grade for shell eggs and USDA requirements for egg-products plants. The State is now considering the adoption of the Model Shell Egg Law.

LANDMARK INSPECTION CASE

The first criminal action against a firm for violating the Poultry Products Inspection Act by shipping non-inspected poultry from an official processing plant in intrastate commerce, was taken recently in Tennessee.

A Tennessee poultry firm was fined \$300 in U.S. District Court for processing slaughtered chickens without post-mortem inspection, and transporting these uninspected chickens in violation of the Act.

POULTRY STANDARDS CHANGE PROPOSED

In keeping with changes in marketing practices of poultry and poultry products, USDA's Consumer and Marketing Service has proposed to change poultry grading regulations to:

1. Use the weight of the bird instead of the species in establishing tolerances for defects.

2. Delete live and wholesale poultry grades which are obsolete in today's marketing, and

3. Include grade standards for both poultry roasts and for poultry backs.

MEAT TIPS

—from meat inspectors of
USDA's Consumer and Marketing Service.

The term "Country Style" can only be used to describe ham which has been rubbed with a cure mixture containing salt and sugar, and placed in a container for at least 60 days or more. This produces meat that is quite firm, and the cut surface will have a dry appearance.

* * *

Tomato products are not considered to be usual ingredients in products labeled "Pork Sausage." When tomato products are combined with pork, the label must accurately describe the product — as, for example, "Pork and Tomato Sticks," or some other term which prevents the product from being confused with sausage.

* * *

When a new product is introduced on the market it can be labeled as being "new" for a period of only six months.

* * *

The Federal inspection mark must be printed mechanically on cartons and similar containers to assure uniformity and legibility. Applying the mark by hand is permitted only for identification and import inspection where printing is impractical.

* * *

The term "All Beef" cannot be used on a label for tamales unless the product actually contains all beef in the center portion. Tamales which contain both beef and cereal products must be labeled with some other accurate designation.

* * *

The word "pastry" must be included in the name of a product described as a "Beef and Celery Roll" when such a product is prepared with a significant amount of pastry.

A 21-MILE WALK FOR FOOD STAMPS & SHOPPING

*A heartwarming poverty report from
Food Stamp Officer-in-Charge Leon
Saunders, stationed in Norton, Va.*

During a store visit this week in Coeburn, Virginia, I observed a transaction of a recipient spending her total month's coupons amounting to \$66. I was curious as to why the entire amount was being spent and questioned the recipient. She told me the following story:

She had left home at 5:30 a.m., walked 7 miles to the town of Coeburn, took a bus to Wise to purchase her coupons, and walked 14 miles from the Food Stamp office in Wise to the store in Coeburn nearest her home.

She told me that she had no electricity nor any other modern

convenience. She has a milk cow. She leaves her homestead only once a month to purchase her coupons and do her shopping. She has received an Aid to Dependent Children grant for the past 12 years, and has put two daughters through nursing school. Her third child is graduating this year.

At this point in her story, the merchant interrupted to explain that he was going to take the woman home, and, since it looked like rain, they should leave, otherwise they would not be able to make the trip up the mountain trail to her homestead.

AN OEO-USDA TEAM-UP TO FEED THE POOR

*Poverty funds pay county's cost
of distributing donated foods*

Beginning last May, low-income families in Carter County, Missouri, again started receiving U.S. Department of Agriculture donated food commodities.

The commodity distribution program was suspended in Carter County during April 1964 due to the lack of county funds needed to pay the program's administrative costs.

The Office of Economic Opportunity recently awarded a community action grant to Carter County, making funds available to meet these costs and allowing the program to resume.

Upon resumption, the Carter County program became the first in the United States to have its portion of the costs paid through the OEO.

During mid-May Proctor N. Carter, director of the division of welfare, Missouri State Department of Public Health and Welfare, said that "Thus far, 247 families, representing approximately 754 persons, have been certified to take part under the new program."

The Carter County distribution point will be in the former library building in Van Buren.

Under the commodity distribution program, administered by USDA's Consumer and Marketing Service, low-income families are able to receive monthly supplies of Government surplus products, without cost to themselves. To take part in the program, they must be certified by the local welfare agency to be in need of these commodities.

A New Dimension in Beef Grading

By John C. Pierce

"... the most forward-looking step taken in beef grading since the official standards were adopted."

That's the way Secretary of Agriculture Orville L. Freeman described the U.S. Department of Agriculture's recent modernization of beef grade standards. The new grades went into effect June 1.

The new standards provide the basis for an entirely new dimension in beef grading. For the first time, official standards have been adopted to measure the yield of major boneless retail cuts in a beef carcass. Five new yield grades — the result of nearly 15 years of research and testing by the Livestock Division of USDA's Consumer and Marketing Service, colleges and universities, and industry groups — are now available for optional use by the Nation's beef industry.

The yield grades, with the number 1 representing the highest yield of retail cuts and the number 5 representing the lowest, apply to each of the USDA quality grades — Prime, Choice, Good, etc. Applicants for grading service may request yield grading in conjunction with quality grading, or either type of grading separately.

Another significant provision of the up-dated standards is a slight modification of the relationship between maturity and marbling in evaluating beef quality. These two factors have long been recognized as having compensating effects on the eating quality of beef. Increasing animal age tends to make beef less palatable while increased marbling (flecks of fat within the lean) tends to enhance palatability. Historically, Federal grade standards have required increased marbling to compensate for advancing maturity within each grade.

Recent research indicates that too much marbling has been required to offset increases in maturity. The new standards for the USDA Prime, Choice, Good, and Standard grades reduce the rate of increase in marbling from the youngest cattle classified as beef (about 9 months of age) up to about 30 months of age. While this is a comparatively minor change, it should make the eating quality within each of these grades more uniform and slightly reduce the average fatness of each grade.

Grades don't determine price; they do provide the mechanism for expressing and comparing price. Grading systems provide an identification of a product by dividing it into relatively uniform groups on the basis of those characteristics which affect acceptability and value.

Acceptability and value of a beef carcass are determined primarily by two characteristics — the quality of the lean, and the cutability, or yield, of salable beef the carcass will produce. At the retail level, the consumer's quality preference can now be combined with the retailer's evaluation of cutability differences to establish market demand for beef. Through the revised grading system, demand for beef can be accurately reflected back through the marketing system to the producer — the beef architect.

USDA's Federal Meat Grading Service has been identifying differences in beef quality since 1927. This voluntary service has grown from the few million pounds of beef graded during its first year to the point where an estimated 80 percent of all fresh beef cuts sold at retail bear the USDA grade mark of quality. More than 10 billion pounds of beef were graded by the Livestock Division's Federal meat graders last year.

Why, then, the need for a new dimension — yield grading — in a system that is already widely accepted and used?

Grade standards cannot remain static. Continued research and improvement is imperative if the system is to

continue to function as an effective marketing tool for the industry it serves.

Standards should provide the basis for reflecting changes in production methods, marketing patterns, and consumer preferences. Most of all, they should reflect the best available research information.

The basic problem indicating the need for a more precise grading tool — and the new dimension of yield grading — is the increasing consumer aversion to excess fat on beef. This consumer demand for a closely trimmed beef product has forced the retailer to remove more and more fat before placing beef cuts in the meat counter.

Last year, an estimated 2 billion pounds of fat was removed or trimmed from our fed beef production. As a part of the carcass beef traded in wholesale market channels, that fat represented an investment of about \$500 million. As a by-product, the same fat represented an estimated value of only about \$100 million. This does not imply that the production of high quality beef does not require the removal of some excess fat from certain portions of the carcass. Some marbling is necessary to assure palatability, and some excess fat is a by-product of marbling development. However, it is conservatively estimated that nearly one-third of the excess fat produced could be eliminated through a long-range beef breeding and management program of improved selection — and without any sacrifice in the eating quality of the beef.

Excess fat increases the costs of



The quality grade mark at right still identifies the eating quality of beef. The new cutability — or yield — grade stamp at left identifies differences in the yield of closely trimmed retail cuts obtainable from different carcasses.

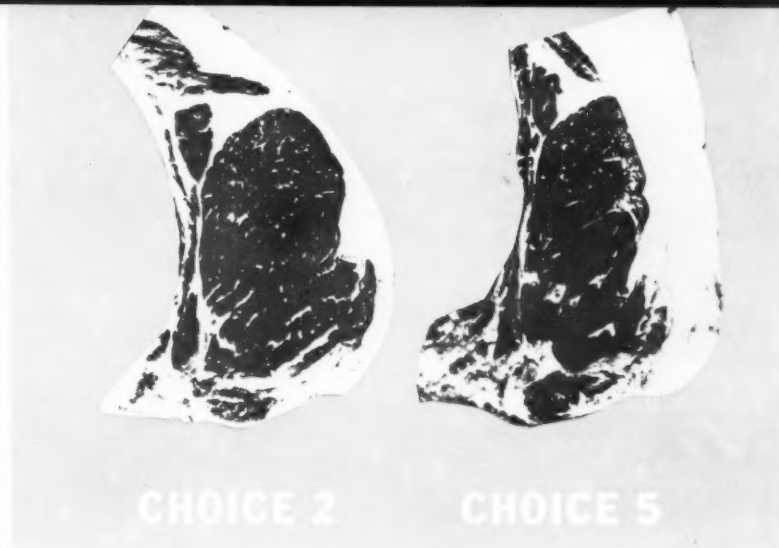
beef production, transportation, marketing and trimming — because today's consumer simply won't buy it. But rejection of this excess fat is not limited to the consumer. A retailer located 2,000 miles from a packing plant, for example, may buy beef under a contract which prohibits "overfat and wasty carcasses." Such general — rather than specific — language may result in the retailer's rejection of the beef carcasses when they are delivered. Under such circumstances, the carcasses are frequently disposed of at a loss, or even worse, further expense may be incurred by shipping them to another outlet. Certainly, excessive fat is an economic waste the beef industry can ill afford; and the elimination of only part of it could well mean the difference between profit and loss for all segments of the industry.

How much of a difference do variations in carcass yields really make?

On the basis of cutting tests involving hundreds of beef carcasses, the Livestock Division found that similar weight Choice grade carcasses vary as much as 15 percent in the yield of trimmed boneless cuts from the round, loin, rib, and chuck. These major cuts represent about 85 percent of the retail value of the carcass, but may frequently account for less than half the carcass weight.

At prevailing prices for 1,000-pound Choice grade slaughter steers or 600-pound Choice grade carcasses, a 15 percent variation in yield means a retail value difference of more than \$100 per carcass. While this much variation is the exception rather than the rule, differences of \$25 to \$30 are not uncommon. The magnitude of the extremes is important, however, because it indicates the wide latitude for selection and improvement.

Historically, the cattle and beef business has operated on a relatively narrow profit margin. During the record beef production of 1964, for example, many beef producers were operating at a substantial loss. At that time, many heavy, overfat cattle were marketed. Yet, during this critical period, the official USDA beef quality grade standards did not provide the means for segregating the meaty, high-yielding, high-quality carcasses and slaughter cattle from the poorly muscled, excessively fat ones of the same grade and weight. In effect, in a highly competitive industry with some producers even operating below cost of production, the existing grading system did not provide an adequate means for



The eating quality — the tenderness, juiciness, and flavor, — is the same for both of these USDA Choice grade ribs. But the Choice 2 rib would be more valuable because it will yield more trimmed salable meat with less waste fat.

rewarding the producer of the more valuable product — the producer who might have merited and earned a profit.

The true market value differences between high-yielding cattle and carcasses and their much less valuable counterparts have been ignored too long, and trading has continued primarily on a basis of averages.

Fortunately, the beef industry is placing strong emphasis on the production and identification of those lines of cattle that combine thickly muscled, high quality carcasses with a rapid rate of growth and early maturity. The yield grade has the potential — through application in the marketplace — of providing the financial incentive necessary to make industry's efforts in that direction even more effective.

Experience has shown that four factors — thickness of fat over the carcass ribeye muscle, the size of the ribeye, the quantity of internal carcass fat, and carcass weight — account for more than 80 percent of the variation in carcass yield. These factors can be objectively measured, but, fortunately, with practice and experience they can also be estimated with a high degree of accuracy from a simple and rapid visual appraisal. Experience also shows that buyers can accurately appraise cutability differences in slaughter cattle through the practical application of those factors associated with differences in fatness and muscling.

Yield grades will, of course, have to prove their value to the industry. This means trial and usage if the efficient producer is to be rewarded, and the marketing system is to become more

efficient through a more precise market identification of cattle and beef.

The stakes are high and the whole industry should benefit from greater recognition of cutability differences.

The producer of high quality meat-type cattle should receive the financial incentive to increase his production.

Yield grades offer the marketing agency the distinct opportunity to render a more professional service to producers — to obtain for them prices more commensurate with the actual market value of their cattle.

Yield grades offer the packer an opportunity to market beef nationally with a more precise identification — reducing, and perhaps eliminating, buyer rejections due to a lack of product identification.

Yield grades enable the retailer to buy a more precisely identified product, and to broaden his range of acceptance through the use of appropriate price differentials, rather than narrowing the range through restrictive private specifications.

Yield grades offer the consumer the potential of lower cost beef through reductions in marketing costs and the production of greater quantities of salable meat.

Yield grades have, indeed, opened up a new dimension in beef grading. The fullest exploration of that dimension by the Nation's cattle and beef industry should contribute greatly to increased beef consumption, a stronger industry, and a better fed Nation.

(The author is Deputy Director of the Livestock Division, C&MS.)

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OFFICIAL BUSINESS

Cheese and Cherry Blossoms DO Mix



The famed cherry blossoms of the Nation's Capital and Wisconsin cheese normally don't have much in common.

But in 1965, with the help of two pretty girls, the Wisconsin Department of Agriculture, USDA and a major food retail chain, cherry blossoms and cheese joined forces in a Cheese Festival that ran concurrently with the Cherry Blossom Festival in Washington.

The result was much attention to cheese generally as a tasty, nutritious, versatile food, and to Wisconsin cheese particularly, which represents almost half the U.S. total.

Out-of-State promotion of Wisconsin's dairy products is in its 15th year, financed by appropriations from the Badger State Legislature, and carried out by the State Department of Agriculture. Heading the event in Washington was Director D. N. McDowell and Marketing Chief Robert F. Thayer, with W. T. Reese and Dale Boness in charge of arrangements.

But press, radio and television attention fell on ambassadress, "Alice in Dairyland," Sylvia Lee, a native of Colfax, Wisconsin. She shared some of the limelight with the 1965 Cherry Blossom Princess, Karen Berke of Modena, Wisconsin, a home economist in the Consumer and Marketing Service's School Lunch Division in Washington.

Arriving in Washington, D.C. to begin a week's "Wisconsin Cheese Festival," Alice in Dairyland — Sylvia Lee — is greeted by Wisconsin's Cherry Blossom Princess, Karen Berke of C&MS and by U.S. Department of Agriculture and State officials, including Trienah Meyers, Deputy Assistant Secretary for Marketing and Consumer

Services, (left); C&MS Dairy Division Director Herbert L. Forest (top left), Byron G. Allen, Assistant to the Secretary for Federal-State Relations; D. N. McDowell, Director of Wisconsin's Dept. of Agriculture; and Mrs. Marion Davis, Mr. Allen's assistant. Above, the Wisconsin Ladies pass out samples of cheese to customers in a chain food store.



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